

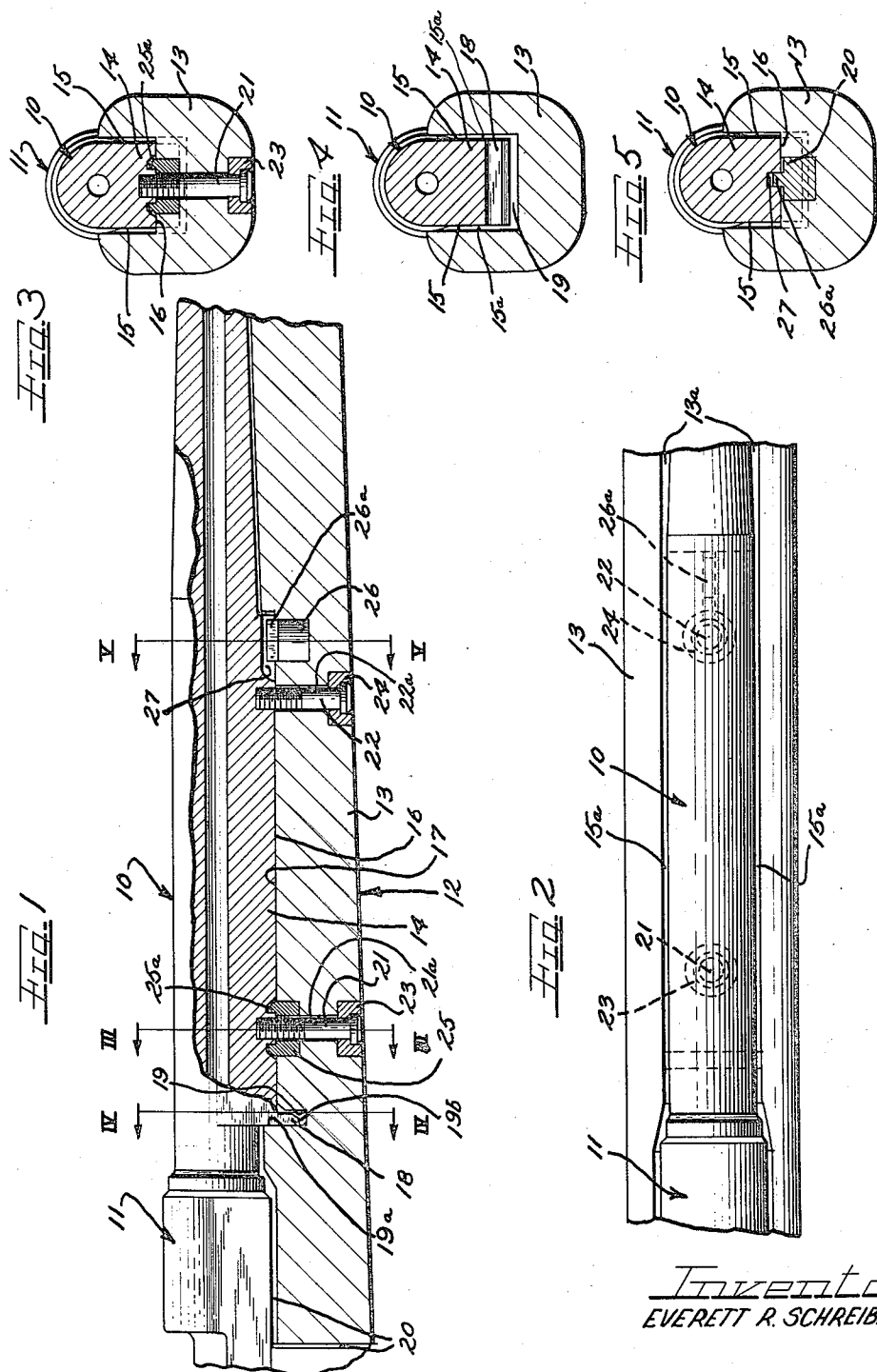
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GUN BARREL AND GUN STOCK ASSEMBLY

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GUN BARREL AND GUN STOCK ASSEMBLY

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This invention relates generally to firearms and more particularly to means for mounting the barrel-unit or barrel and receiver on the stock-unit of a firearm.

Heretofore, where a bedded firearm, such as a rifle, is employed in competitive target shooting or where extreme accuracy is required, difficulty has been encountered wherein distortion of the barrel takes place due to temperature changes such as when the barrel becomes heated under firing conditions. Also, weather conditions cause stock warpage which substantially effects barrel distortion. Moreover, barrel vibration in a single rifle has in the past varied under firing conditions thereby substantially affecting bullet travel.

Also, in the past, it has been necessary to hold down the receiver by providing screws for attaching the receiver to the stock, which has necessitated machined receiver surfaces for contacting the stock. And where interchange of parts was desired, mainly, the barrel-unit with the stock-unit, handwork or fitting has been required which necessitates close tolerances in manufacturing.

Accordingly, in the present invention, the barrel of a firearm is provided with a mounting section. Attaching screws connect the mounting section to the forestock of a stock, but the attaching screws are freely received in the stock to prevent binding therewith upon dimensional changes of the stock. A transverse slot is formed in the stock to slidably receive a recoil lug. A pair of locating studs are secured to the stock, and engage the mounting section of the barrel with a slip fit. Other than in the region of the mounting section of the barrel, the barrel-unit will not normally contact the stock-unit.

Therefore, it is an object of this invention to provide an improved firearm, such as a target rifle, where consistently accurate shooting is required, capable of performing with a superior degree of accuracy.

Another object of this invention is to provide a firearm construction, wherein the mounting of the barrel-unit on the stock-unit requires no handwork or fitting thereby allowing for greater tolerances in manufacturing and lowering manufacturing costs.

Still a further object of this invention is in the provision of a firearm construction having the barrel-unit mounted on the stock-unit and attached thereto only in the area of the barrel, wherein the receiver will not contact the stock at any point thereby eliminating the necessity of accurately machining the receiver and lowering the cost in receiver manufacturing.

Another feature of this invention is to provide a firearm construction, wherein distortion of the barrel, which causes inaccurate shooting and is due to temperature changes and stock warpage, is substantially eliminated.

Still another feature of this invention is to provide a rifle stocked in such a manner as to be entirely free from stress and strain due to moisture, expansion or contraction of the wood stock.

Another object of this invention is in the provision of a rifle stocked in such a manner, that the barrel vibration

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during shooting of the rifle remains constant, thereby permitting a very accurate bullet travel.

A further object of this invention is to provide a rifle stocked in such a manner that the receiver will not contact the stock at any point, thereby eliminating hold down screws for the receiver.

A still further object of this invention is to provide a firearm having a barrel-unit mounted on a stock-unit and connected thereto by means of attaching screws, wherein the screws are provided with clearance from the stock thereby avoiding binding therewith due to dimensional changes in the stock.

A still further feature of this invention is to provide a firearm construction, wherein the barrel is provided with a recoil lug slidably received in a transverse groove of the stock and contacting the groove on one side only.

Another object of this invention resides in the provision of a firearm having a stock carrying a pair of locating studs that are slidably received by the barrel.

Other objects, features and advantages of the invention will be apparent from the following detailed description of the drawing, which illustrates the invention.

On the drawings:

Figure 1 is a fragmentary side elevation view, partly in section, and broken to show the manner of bedding a rifle barrel on a stock in accordance with the principles of the invention;

Figure 2 is a fragmentary top plan view of the firearm in Figure 1;

Figure 3 is a transverse sectional view, with parts in elevation, taken along the line III—III of Figure 1, looking in the direction of the arrows;

Figure 4 is a transverse sectional view, taken substantially along line IV—IV in Figure 1 and looking in the direction of the arrows; and

Figure 5 is a transverse sectional view taken along line V—V in Figure 1 and looking in the direction of the arrows.

As shown on the drawings:

Referring generally to Figure 1, a rifle is shown comprising a barrel 10 suitably secured at one end to a receiver 11, and a stock 12 having a forestock 13 on which the barrel-unit (barrel 10 and receiver 11) is mounted.

The barrel 10 is provided with an enlarged mounting section 14 intermediate its ends and preferably adjacent the end connected to the receiver, as shown in Figure 1. As shown, the mounting section is integral with the barrel and provided with straight side walls 15, 15 merging at the upper ends with the curvate portion of the barrel 10 and at their lower ends with a bottom or horizontal contacting face 16.

The forestock 13 is substantially square in cross-section with rounded corners and provided with a longitudinal barrel-receiving groove which is shaped to conform to the barrel configuration. Thus, at the fore end of the forestock 13 the groove would be substantially semi-cylindrical in cross-section, while in the vicinity of the mounting section 14 of the barrel, the groove is substantially square and opening upwardly, having an upwardly facing contacting surface 17. It is noted in Figures 3, 4 and 5 that the width of the longitudinal stock groove in the vicinity of the mounting section 14 of the barrel is slightly greater than the mounting section, to provide clearance, as indicated at 15a, between the sides 15 of the mounting section and the forestock. It is also seen in Figure 2 that clearance as indicated at 13a exists between the sides of the forepart of the barrel and the forestock 13 at the fore end of the firearm. In other words, clearance is provided all along the forepart of the firearm between the barrel 10 and the forestock 13.

A recoil lug 18 extends downwardly from the rear end of the mounting section 14 and is slidably received in a transverse groove 19 opening upwardly from the forestock 13 and being located at the rear end of the contact surface 17. The lug 18 contacts only the rear wall 19a of the groove 19 and it is at this contact point that the recoil of the firearm is taken up. It is noted that clearance at 19b exists between the bottom of the groove and the lug 18 and the front wall of the groove and the lug, as well as the side walls of the lug with respect to the vertical side walls of the groove of the forestock 13. Thus, the recoil lug 18 is slidably received in the groove 19 and is free to slide upwardly and downwardly, within predetermined limits, while only contacting one wall of the groove to take up the recoil.

As designated by the numeral 20, it is seen that clearance exists between all parts of the receiver 11 and the stock 12; and although the complete receiver and complete stock are not shown, it will be understood that a clearance exists normally between all points on the receiver and the stock.

In order to attach the stock to the barrel, the barrel contacting face 16 is placed into intimate contact with the stock contact face 17 and a pair of attaching screws 21 and 22 are received through suitable apertures in the forestock and are threadedly engaged in threaded blind holes provided for the purpose in the mounting section 14 of the barrel 10. The screws 21 and 22 are in axial alignment with the bore of the barrel. A pair of bushings 23 and 24, preferably of metal, are embedded in the underside of the forestock 13 to receive the respective heads of the attaching screws 21 and 22 and provide strength to the wood stock and prevent damage thereto from the screws. It is noted from Figures 1 and 3 that the apertures or bores 21a and 22a receiving the attaching screws 21 and 22 are suitably enlarged to provide a clearance between the screws and the stock, thereby preventing binding between those elements due to dimensional changes in the stock.

In order to hold the recoil lug 18 in close contact with the contacting wall 19a of the groove 19, a rear locating stud 25, preferably of metal, is provided and is carried by a suitable recess in the forestock 13.

The locating stud 25 is generally cylindrical in shape and centrally apertured to be concentrically positioned with respect to the rear attaching screw 21. An upwardly extending annular shoulder 25a extends above the contact surface 17 of the forestock 13 to engage with a slip fit a complementally formed annular recess in the contacting surface 16 of the barrel mounting section 14. The central bore in the locating stud 25 is somewhat larger than the outside diameter of the attaching screw 21 and may be of the same size as the screw-receiving bore in the forestock to provide a clearance between the attaching screw and stud. Also, it may be noted that an annular shoulder portion is formed around the attaching screw in the mounting section 14 to snugly fit on the inside cylindrical wall of the annular shoulder 25a on the locating stud, thus to prevent lateral and longitudinal movement of the barrel with respect to the forestock, especially during firing operations. However, it is seen that a clearance is provided between the other portions of the annular shoulder 25a of the stud 25 and the recess in the mounting section 14 to allow a limited vertical movement between the members upon stock dimensional changes.

A front locating stud 26 is carried by the forestock ahead of the front attaching screw 22 but within the vicinity of the barrel mounting section 14. The front locating stud 26 is generally cylindrical in shape and embedded in the forestock, and carries an upwardly projecting rib 26a extending above the contacting surface 17 and in axial alignment with the bore of the barrel. The rib 26a is received in a complementally formed axially extending groove 27 of the mounting section 14. It may be noted that the groove 27 is deeper than the height of the rib

projecting above the stock contacting surface 17 and greater in length than the rib 26a. Thus the locating stud 26 is slidably engaged with the barrel 10 to prevent lateral movement but to allow relative longitudinal movement of the forestock 13 due to moisture and temperature changes.

While the bushings 23 and 24 and the locating studs 25 and 26 may be secured to the stock in any suitable manner, preferably these elements are press fitted in the stock.

Thus, a rifle stocked in this manner will be entirely free from stress and strain due to moisture, expansion or contraction of the wood stock, thereby enhancing the consistent shooting accuracy of the rifle. It will be readily understood that with the type of mounting arrangement between the stock and barrel-receiver unit described herein, in the interchange of these parts, no hand work or fitting would be required. Therefore, no close manufacturing tolerances need be followed with respect to the stock, thereby lowering the cost of manufacture.

Inasmuch as the receiver will not contact the stock at any point, hold down screws in the receiver are not required, and the surface points on the receiver need not be accurately machined. Hence, lower cost in receiver manufacturing may be accomplished.

From the foregoing, it is seen that the only contact points between the barrel-receiver and the stock are where the mounting section 14 is attached to the stock, and where the recoil lug 18 contacts the wall 19a of the transverse groove 19. Therefore, the barrel 10 will not be distorted from dimensional changes in the stock 12 caused by weather conditions, warpage, etc.

It will be understood that modifications and variations may be effected without departing from the scope of the novel concepts of the present invention, but it is understood that this application is to be limited only by the scope of the appended claims.

I claim as my invention:

1. A mounting device for attaching a rifle barrel to a stock comprising a locating stud in the stock maintaining a slip fit with the barrel, an attaching screw extending through the stock and the stud into threaded engagement with said barrel to provide a connection between the barrel and the stock, a groove in said barrel spaced from said connection, a second locating stud in said stock and having a rib in slip fit with said groove, and a second attaching screw extending through said stock and threadedly received by said barrel providing a second connection between the barrel and the stock.

2. A gun comprising a receiver, a barrel extending therefrom and having a mounting section projecting therebelow, a stock carrying a longitudinally grooved forestock, said forestock receiving said mounting section in intimate contact therewith, a pair of spaced locating studs carried by said forestock and having barrel engaging portions, recesses in the mounting section of said barrel receiving the barrel engaging portions, a pair of spaced bores in said forestock, a pair of centrally apertured spaced bushings carried by said forestock in alignment with said bores, and a pair of attaching screws in said bores threadedly engaging at one end the mounting section of said barrel and having heads at the other end bearing against said bushings, said bores being sized greater than said screws, thereby preventing binding of said forestock with the screws.

3. A gun comprising a receiver, a barrel extending therefrom and having a mounting section projecting therebelow, a stock carrying a longitudinally grooved forestock, said forestock receiving said mounting section in intimate contact therewith, a pair of spaced locating studs carried by said forestock and loosely engaging said barrel, one of said studs preventing lateral and longitudinal movement of said barrel and the other stud preventing lateral movement of the barrel, a pair of spaced bores in said forestock, a pair of centrally apertured spaced bushings carried by said forestock in alignment with said bores,

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and a pair of attaching screws in said bores threadedly engaging at one end the mounting section of said barrel and having heads at the other end bearing against said bushings, said bores being sized greater than said screws thereby preventing binding of said forestock with the screws.

4. A gun comprising a receiver, a barrel extending therefrom and having a mounting section projecting therebelow, a stock carrying a longitudinally grooved forestock, said forestock receiving said mounting section in intimate contact therewith, a transverse groove in said forestock opening upwardly, a recoil lug projecting downwardly from said barrel and at one end of said mounting section, said lug received in said groove and contacting only one side thereof but not being bottomed in said groove, a pair of spaced locating studs carried by said forestock and loosely engaging said barrel, one of said studs preventing lateral and longitudinal movement of said barrel and the other stud preventing lateral movement of the barrel, a pair of spaced bores in said forestock, a pair of centrally apertured spaced bushings carried by said forestock in alignment with said bores, and a pair of attaching screws in said bores threadedly engaging at one end the mounting section of said barrel and having heads at the other end bearing against said bushings, said bores being sized greater than said screws thereby preventing binding of said forestock with the screws.

5. A gun comprising a receiver, a barrel extending therefrom and having a mounting section projecting therebelow, a stock carrying a longitudinally grooved forestock, said forestock receiving said mounting section in intimate contact therewith, a transverse groove in said forestock opening upwardly, a recoil lug projecting downwardly from said barrel and at one end of said mounting section, said lug received in said groove and contacting only one side thereof and being spaced from the bottom of said groove, a pair of spaced locating studs carried by said forestock and loosely engaging said barrel, one of said studs preventing lateral and longitudinal movement of said barrel and the other stud preventing lateral movement of the barrel, a pair of spaced bores in said forestock, a pair of centrally apertured spaced bushings carried by said forestock in alignment with said bores and a pair of attaching screws in said bores threaded engaging at one end the mounting section of said barrel and having heads at the other end bearing against said bushings, said bores being sized greater than said screws thereby

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preventing binding of said forestock with the screws, said stock contacting the receiver and barrel only at the recoil lug and the mounting section.

6. In a gun, a receiver, a barrel extending therefrom and having a mounting section intermediate the ends thereof, a stock attached to said receiver and barrel only at the mounting section, means protruding from said barrel and received in sliding engagement with said stock to take-up the recoil of the gun, a pair of spaced locating studs carried by said stock and having a slip fit with said barrel, one of said studs permitting relatively longitudinal movement between said forestock and said barrel while preventing lateral movement therebetween, said other stud permitting only a relative, limited vertical movement between said forestock and said barrel, and means connecting the mounting section of the barrel to the stock but allowing clearance at all other points between the receiver-barrel and the stock.

7. In a gun, a receiver, a barrel extending therefrom and having a mounting section intermediate the ends thereof, a stock attached to said receiver and barrel only at the mounting section, means protruding from said barrel and received in sliding engagement with said stock to take-up the recoil of the gun, means carried by said stock engaging said barrel to provide slip fit therebetween while preventing lateral and longitudinal movement between the stock and barrel including a pair of spaced locating studs carried by said stock and having a slip fit with said barrel, one of said studs permitting relative longitudinal movement between said forestock and said barrel while preventing lateral movement therebetween, said other stud permitting only a relative, limited, vertical movement between said forestock and said barrel, and means connecting the mounting section of the barrel to the stock but allowing clearance at all other points between the receiver-barrel and the stock.

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